WHAT IS CLAIMED IS:

1. A method of producing a flexible self-expandable stent, comprising:

fabricating hollow cylindrical inside and outside stent bodies by knitting first and second super-elastic shape memory alloy wires to make a net-like structure of each of the inside and outside stent bodies in that the first wire, which is zigzagged with a diagonal length P in a longitudinal direction of each of the inside and outside stent bodies, is interlocked with the second wire, which is zigzagged with a diagonal length 2P in the longitudinal direction, at different positions to form a plurality of interlocked points capable of allowing each of the inside and outside stent bodies to contract and expand in the longitudinal direction, with a plurality of intersecting points being formed by a repeated intersection of the first and second wires at a plurality of positions between the interlocked points to allow each of the inside and outside stent bodies to apply a force against the longitudinal contraction thereof, and a plurality of diamond-shaped meshes being defined by the interlocked points and the intersecting points, the first and second wires being thus interlocked with each other to be prevented from being separated from each other while allowing each of the inside and outside stent bodies to contract and expand;

fitting a hollow rubber tube closely over the inside stent body, the hollow rubber tube having a length similar to a length of each of the inside and outside stent bodies;

fitting the outside stent body closely over the hollow rubber tube; and

integrating each of overlapped ends of the rubber tube and the inside and outside stent bodies into a single structure.

2. The method according to claim 1, wherein the integrating of each of the overlapped ends of the rubber tube and the inside and outside stent bodies into the single structure, comprises:

sewing each of the overlapped ends of the rubber tube and the inside and outside stent bodies with a thread by stitching each of the overlapped ends, thus forming a sewn end; and

immersing the sewn end in a synthetic resin solution to form a resin-impregnated part at the sewn end.

3. The method according to claim 2, wherein the synthetic resin solution comprises polyurethane.

4. A flexible self-expandable stent, comprising:

hollow cylindrical inside and outside stent bodies fabricated by knitting first and second super-elastic shape memory alloy wires to make a net-like structure of each of the

inside and outside stent bodies in that the first wire, which is zigzagged with a diagonal length P in a longitudinal direction of each of the inside and outside stent bodies, is interlocked with the second wire, which is zigzagged with a diagonal length 2P in the longitudinal direction, at different positions to form a plurality of interlocked points capable of allowing each of the inside and outside stent bodies to contract and expand in the longitudinal direction, with a plurality of intersecting points being formed by a repeated intersection of the first and second wires at a plurality of positions between the interlocked points to allow each of the inside and outside stent bodies to apply a force against the longitudinal contraction thereof, and a plurality of diamond-shaped meshes being defined by the interlocked points and the intersecting points, the first and second wires being thus interlocked with each other to be prevented from being separated from each other while allowing each of the inside and outside stent bodies to contract and expand; and

a hollow rubber tube closely fitted between the inside and outside stent bodies, the hollow rubber tube having a length similar to a length of each of the inside and outside stent bodies, with each of overlapped ends of the rubber tube and the inside and outside stent bodies being integrating into a single structure.

5. The flexible self-expandable stent according to claim 4, wherein each of the overlapped ends of the rubber tube and the inside and outside stent bodies is sewn with a thread by stitching to form a sewn end, and the sewn end is immersed in a polyurethane solution to form a resin-impregnated part, thus being integrated into the single structure.